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Crime, Punishment, and Institutions

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CRIME, PUNISHMENT, AND INSTITUTIONS

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ABSTRACT

The effect of prison conditions and discretionary parole on inmate behavior and crime rates is examined. Evidence suggests that prison conditions and crime rates are positively related, and that a shift away from discretionary parole leads to lower crime rates, but possibly higher levels of inmate misconduct.

DEDICATION

This thesis is dedicated to the friends, family, and professors who didn't give up on me.

ACKNOWLEDGEMENTS

I wish to acknowledge all the helpful advice of my advisors, as well as the advice and suggestions of the summer 2008 Clemson Public Economics Workshop participants.

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INTRODUCTION

Crime in the United States declined across the board in the 1990s, to the surprise of many. Levitt[1] stresses just how unexpected the decline was:

> *"Having just lived through an enormous reduction in crime [in the early 1990s], it is hard to reconstruct just how unexpected such a decline really was. Even after the fall had begun, some of the world's most prominent criminologists dismissed the decline as a transitory blip that would quickly be reversed."*

Many criminologists believe that demographics are the overriding determinants[2] of crime rates. On the other hand, economists believe that crime, like all human activity, is affected by the associated costs and benefits. Recent economic research suggests that increasing incarceration rates[3] are responsible for much of the decline in crime that began in the early 1990s.

This study examines how various institutions affect the cost of crime and punishment. Chapter I examines the possible impact of prison conditions on inmates' overall utility levels

[1] (Levitt, Understanding Why Crime Fell in the 1990s: Four Factors that Explain the Decline and Six that Do Not 2004)

[2] James Q. Wilson (1995, p. 507) wrote, "Just beyond the horizon, there lurks a cloud that the winds will soon bring over us. The population will start getting younger again . . . .Get ready."
John Dilulio (1996, p. 8) wrote, "It is not inconceivable that the demographic surge of the next 10 years will bring with it young male criminals who make the . . . Bloods and Crips look tame by comparison."
Also see (Fox 1996).

[3] Many studies find this, such as (Levitt, Understanding Why Crime Fell in the 1990s: Four Factors that Explain the Decline and Six that Do Not 2004), (Marvell and Moody, Prison Population Growth and Crime Reduction 1994), (Levitt, The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation 1996)

using voluntary parole waivers as an indicator of the attractiveness of prison life. Chapter II also examines the effect of prison conditions – this time on the long-run effect on various measures of crime. Chapter III studies the effects of two recent sentencing reforms – truth-in-sentencing and sentencing guidelines—on crime rates. Chapter IV examines the determinants of misconduct in prisons, and attempts to determine whether truth-in-sentencing reforms studied in chapter III have change the incentives of inmate misconduct.

Literature Review

Background

Becker (1968) formally extended rational-choice theory to criminal behavior, but he was not the first to apply the principles of economics to the analysis of crime and crime prevention. Adam Smith (1776) argued that crime and the demand for protection from crime are both motivated by the accumulation of property. Jeremy Bentham (1789) [1843] wrote that "…the profit of crime is that force which urges man to delinquency: the pain of punishment is the force employed to restrain him from it. If the first of these forces be the greater, the crime will be committed; if the second, the crime will not be committed." Tullock (1971) observed that many of the reforms to criminal law suggested by Bentham had only recently gained traction in the legal community at the time he wrote.

Becker argued that criminal activity is rational, self-interested behavior that can be modeled within the constrained optimization framework. In such a world the concept of deterrence is central: Criminals will commit fewer crimes when the expected cost associated with crime goes up. Becker noted that expected punishment is a function of the probability of apprehension and conviction, along with the severity of punishment (most often in the form of a

fine or imprisonment, or both). Becker also argued that the optimal level of crime is non-zero; preventing crime is costly, and it is only worth preventing a unit of crime if the marginal benefit to society is greater than the associated marginal cost.

Stigler (1970) expanded on Becker's propositions about the rational enforcement of laws. He argued that rational enforcement of laws must have these two properties: 1) expected penalties increase with expected gains, so there is no marginal net gain from larger offenses; and 2) expenditure on crime prevention generates a reduction in crime, at the margin, equal to the return on these resources in other areas. This idea of the necessity of "marginal deterrence" suggests that many "sentence enhancements" of the type imposed today may not be optimal.

Tullock (1971) analyzed the optimality of institutional arrangements for maximizing the net gain associated with protection of private property. He argued that fines cannot be a solution to thefts because real-life criminals are insolvent, and therefore direct costs must be imposed on the thief. The cost imposed on the thief should be equal to the damages, and the damages should be a function of the probability that the police solve the crime. Thus, crimes that are more costly to detect should trigger stiffer penalties.

Tullock contended that the imperfect control over the courts gives rise to the observed association of declining conviction rates with an increasing severity of sentences. If courts were organized so that they carried out the law as it was given to them, no problem would arise. If, on the other hand, the courts followed their own ethical standards rather than the law, then this fact must be taken into account when drawing up the basic law. Tullock's argument may explain the rise of legislatively imposed sentence enhancements and determinate sentencing: If the

courts do not enforce the law as it is written, legislatures may be moved to restrict the courts' independence.

Tullock also commented on criminals' expectation of punishment as it applies to prison conditions and deterrence, arguing that it is sensible to exaggerate the unpleasantness of prison life. Thus, when a new prison opens, the officials might well make statements to the press to the effect that it would be an awful place in which to be incarcerated instead of pointing out its "humane" features.

Ehrlich (1973) modeled a criminal's choice of the allocation of his time between legal and illegal activities. He stated that concurrent offense imprisonment terms for multiple offenses create an incentive for offenders to specialize in illegitimate activities because they do not bear the full cost of allocating additional time to those activities. Additionally, Ehrlich's model suggested that specialization in illegitimate activities is a function of risk preference. A risk-neutral offender will spend more time in illegitimate activities than will a risk avoider, and a risk seeker will spend more time in illegitimate activities relative to both. Ehrlich also noted that offenders with legitimate labor market wages well below the median in their areas have a greater differential return from property crimes and, therefore a greater incentive to engage in such criminal activity.

Overview of the Empirical Literature on Crime

Much of the scholarly literature on crime consists of empirical tests of the effectiveness of incarceration in reducing crime rates, as well as the welfare implications of incarcerating the marginal and the average prisoner. Incarceration has two distinct components that can affect crime: incapacitation and deterrence. Incapacitation can reduce crime because the criminal is

locked up, and so is unable to commit crimes (except against other inmates). Deterrence refers to the change in behavior of a criminal in response to the threat of being locked up.

DiIulio and Piehl (1991) found that the number of crimes committed by criminals is very positively skewed. For example, the median prisoner in Wisconsin reports involvement in twelve non-related crimes per year when not imprisoned, while the mean self-reported figure is 141. Piehl and DiIulio (1995) find that the cost-benefit calculations suggest that the social benefits of incarcerating the median and mean prisoner outweigh the social costs, but the cost of imprisoning the bottom quartile of inmates outweighs the social benefits.

Marvell and Moody (1994) used state-level panel data of 49 states' incarceration rates from 1971 to 1989 to estimate the elasticity of crime with respect to incarceration rates. They estimated that about 17 crimes (mainly property crimes) were averted for each additional prisoner put behind bars.

Levitt (1996) suggested that because of the endogeneity between crime and imprisonment, studies such as Marvell and Moody (1994) understate the true impact of imprisonment on crime. A simultaneity bias exists because increased incarceration is likely to reduce the amount of crime, but increases in crime will translate into larger prison populations. Therefore, OLS estimates of the effect of prisons on crime rates are likely to understate the magnitude of the effect, perhaps substantially. Levitt used overcrowding litigation as an instrument for the size of the prison population in order to attempt to correct for simultaneity bias, because presumably overcrowding litigation is correlated with prison populations but is otherwise not correlated with crime rates.

Prior to instrumenting, Levitt obtained estimates that are slightly smaller than those in past research: elasticities of crime with respect to prisoner populations of approximately -0.10. His IV estimates are much larger: -0.40 for violent crime and for -.30 for property crime. Levitt's results suggest that each prisoner released as a result of overcrowding litigation is associated with an extra fifteen crimes per year, almost exactly the self-reported criminal activity of the median prisoner in Dilulio and Piehl (1991). Using the estimates of the costs of crime to victims in Cohen (1988) and Miller, Cohen, and Rossman (1993), the marginal social benefit in crime reduction of adding one prisoner for one year can be estimated to be approximately $50,000, while the annual marginal costs of incarceration are roughly $30,000 per prisoner.

In a study using national data from 1930 to 1994, Marvell and Moody (1997) found that a 10 percent increase in the total prison population was associated with a 13 percent decrease in homicide, after controlling for socioeconomic factors. Raphael and Stoll (2004) analyzed the relationship between prisoner releases and state crime rates from 1977 to 1999. Increased prisoner releases were associated with increased murder, rape, robbery, burglary, and larceny rates. Spelman (2000) estimated that the drop in crime during the 1990s would have been 27 to 34 percent smaller without the prison buildup. Spelman (2005) analyzed the impact of incarceration in Texas counties from 1990 to 2000, finding that the most significant factor responsible for the drop in crime in Texas was the state's prison expansion.

Johnson and Raphael (2006) measured the effect of aggregate changes in incarceration on changes in crime, accounting for the potential simultaneous relationship between incarceration and crime. They developed an instrument for future changes in incarceration rates based on the theoretically predicted dynamic adjustment path of the aggregate incarceration

rate in response to a shock to prison entrance-or-exit transition probabilities. Using state-level data for the United States covering the period from 1978 to 2004, they find that crime-prison elasticities are considerably larger than those implied by OLS estimates. For the entire time period, average crime-prison effects have implied elasticities of between -0.06 and -0.11 for violent crime and between -0.15 and -0.21 for property crime. They also presented the results for two sub-periods of their panel: 1978 to 1990 and 1991 to 2004. Their IV estimates for the earlier period suggest much larger crime-prison effects, consistent with Levitt (1996). The latter period revealed much less of an effect.

Levitt (2004) reviewed the facts on crime. In the 1990s, all categories of crime decline in all parts of the United States. Homicide rates fell 43 percent from the peak of 1991 to 2001, reaching the lowest level in 35 years. Over the same time period, the FBI's violent crime index fell 34 percent, while property crime index fell 29 percent. Levitt notes that the leading experts were predicting an explosion in crime in the early and mid-1990s, exactly the time when crime rates began to plunge. Levitt claims that most of the popular explanations on why crime rates fell, such as innovative policing strategies, played little direct roles in the decline.

Barclay, Tavares, and Siddique (2001) compared crime trends in the United States versus the European Union. They estimated that homicide rates fell 4 percent on average in the EU between 1995 and 1999, while in the U.S., homicide rates fell 28 percent. They also estimated that violent crime rose 11 percent on average in the EU over the same time period, compared to a 20 percent growth rate in the United States.

Of the factors Levitt dismissed, one is the effect of the strong economy of the 1990s. Numerous studies have suggested that the observed 2% decline in the unemployment rate can

account for an estimated 2% decline in property crime, but it cannot account for any change in violent crime. Levitt suggested that demographic shifts account for about one-sixth sixth of the observed decline in property crimes in the 1990s, but very little of the decline in violent crimes. He argued that the notion that better policing strategies reduce crime has little or no empirical support. Levitt also dismisses the roles of changing gun-control laws, whether those changes resulted in more stringent gun control laws or permitted the carrying of concealed weapons.

Levitt argues that increases in the number of police did have a major impact on crime reduction and quotes Marvel and Moody (1996), who found the estimated elasticities of crime with respect to the number of police to be approximately .30. Levitt (2002) obtained an even higher estimate when he used the number of firefighters as an instrument. He contended that the increase in police between 1991 and 2001 can explain between one-fifth and one-tenth of the overall decline in crime, and that the investment appears to have been attractive from a cost-benefit perspective.

Using an estimate of elasticity of crime with respect to punishment of -.30 for homicide and violent crime and -.20 for property crime, Levitt concludes that the increase in incarceration over the 1990s accounted for a reduction in crime of approximately 12 percent for the first two categories and 8 percent for property crime, or about one-third of the observed decline in crime.

Levitt contends that the receding crack epidemic explains about 15 percent of the fall of homicide, but very little of the decline in other categories of crime. Also, Levitt contends that legalized abortion is associated with a 10 percent reduction in homicide, violent crime, and property crime, which would account for 25-30 percent of the observed decline in the 1990s.

Sentence Enhancements and the Measurement of Deterrence

Sentence enhancements are additional penalties imposed on offenders for serious crimes. Sentence enhancements include such innovations as three-strikes laws, repeat-offender enhancements, and truth-in-sentencing laws. Sentence enhancements have been implemented in some form in virtually every state. From an economist's point of view, sentence enhancements are problematic. First, sentence enhancements appear to violate Stigler's proposition that rational punishment requires additional deterrence for more severe crimes. Such marginal deterrence is often eliminated with sentence enhancements, since a third felony, regardless of the severity of the felony, can result in enhanced sentences, thereby possibly creating an incentive for a criminal to increase the severity of the crime.

In addition to economists' objections to sentence enhancements, critics have argued that given the relatively short length of criminals' careers (about 10 years on average[4]), incapacitating offenders beyond the standard sentence length has little effect on reducing crime.

Keeping in mind the theoretical objections to sentence enhancements, is it possible to develop countervailing arguments in support of sentence enhancements? Friedman and Sjostrom (1993) argue that more severe punishments for more serious offenses are a necessary condition for efficient crime prevention only with additional assumptions, the main one is that the cost function for apprehending and convicting offenders is the same for all of the alternative offenses being considered.

[4] (Blumstein, et al. 1986), p. 92

Sentence enhancements provide an empirical test of the deterrence-versus-incapacitation effect of incarceration, at least in the short-run. A fall in crime rates that occurs in response to the enactment of sentence enhancements suggests that the deterrent effect dominates the incapacitation effect. When simply looking at incarceration rates and crime rates, it is very difficult to break down the effect into a distinct incapacitation and deterrent effect. Therefore, it is important to establish empirically that a deterrent effect exists.

McCormick and Tollison (1984) present one of the first empirical tests of deterrence versus incapacitation. They analyze the effect adding an additional referee on the frequency of fouls committed in college basketball games, finding a decline in the number of fouls committed. Given that no incapacitation exists, the results measure the pure deterrent effect of increased policing.

Kessler and Levitt (1999) analyze the outcome of California's Proposition 184, which requires courts to lengthen the sentence of repeat offenders in cases involving violent crimes. They find that longer sentences have tended to reduce crime. Within three years, crimes covered by the law fell an estimated 8 percent. Seven years after the change in law, these crimes were down 20 percent.

Shepherd (2002a) argues that the deterrent effect of three-strikes laws is not limited to the third strike, and that studies that only examine the effect of the third strike underestimate the full deterrent effect of the legislation.

Shepherd (2002b) explores the impact of truth-in-sentencing (TIS) legislation on police prosecutors and criminals. TIS laws require violent offenders to serve at least 85 percent of

their prison sentence. Prior to the 1970s, criminal punishment was based on a system of indeterminate sentencing. Judges and parole boards jointly determined the actual time served by offenders. Shepherd argues that long sentences have little incapacitation effect because prisoners remain in jail past the time at which they would have stopped offending (according to age-profiles of criminal activity). However, even if determinate sentencing produces few benefits through incapacitation, it could still have a large deterrence effect. One of the primary goals of Shepherd's paper is to determine the magnitude of the deterrence effect. Shepherd finds that that TIS laws deter offenders from committing violent crimes, but that these defenders substitute in property crimes instead. Shepherd also finds that TIS laws cause maximum prison sentences to increase, because more offenders choose trials instead of plea bargains.

CHAPTER ONE: VOLUNTARY PAROLE WAIVERS AND PRISON CONDITIONS

Over the two-year period 2004-2005, over 10 percent of inmates in the 26 states for which data could be obtained waived their right to a parole hearing. What can explain the voluntary decision to remain incarcerated? This paper provides an empirical test of the hypothesized factors that influence an inmate's decision to waive his right to a parole.

Introduction

With the exception of Katz, Levitt and Shustorovich (2003), the current literature assumes that the length of a prison sentence captures the extent to which a convicted criminal "pays" for a crime.[1] This implicitly assumes that prison conditions do not vary from jurisdiction to jurisdiction. If this is not true, then the length of a prison sentence alone is not a complete indicator of punishment. Anecdotal evidence suggests that some prisons may no longer be as unpleasant as we thought:

> *Donal Kelleher, 37, an inmate at HMP Cardiff, said that his en suite accommodation was "outstanding" and disclosed that he was paid £10 a week – to study for a maths GCSE – which he spends on cigarettes, chocolate and "other luxury goods".*

[1] Mustard (2003) finds a deterrent effect of conviction rates per se, presumably indicating a "fixed cost" component of a prison sentence.

A prison officer who has worked at Cardiff for 15 years said last week that inmates were simply sitting in their cells watching snooker on television or playing computer games.

He added that a new health care centre put local hospitals "to shame" and made it easier to see a dentist than on the "outside". The extraordinary claims were made after The Daily Telegraph disclosed last week that a prison officers' leader said jails had become so comfortable that some inmates were ignoring chances to escape.[2]

Additional anecdotal evidence also suggests that some inmates prefer prison to life outside prison.[3] Although none of these anecdotes is from U.S. prisons, nonetheless they raise the clear possibility that prison conditions affect the cost-benefit calculation of engaging in criminal activity.

If prison conditions do matter to inmates, then variation in prison conditions across states can have important public-policy implications, most notably with respect to the effectiveness of sentence enhancements as a policy instrument. [Sentence enhancements refer to additional prison time being added on the sentence for particular types of convictions, most often for offenders who have previous convictions, and are commonly referred to as "three strikes" laws.] Sentence enhancements in the short run rely purely on the deterrent effect of

[2] Story from Telegraph News: http://www.telegraph.co.uk/news/1904584/Inmate-boasts-of-%27luxury%27-life-in-prison.html.

[3] Twenty-three-year-old Detlef Federsohn was recently released from the Josefstadt prison in the Austrian capital Vienna after he was incarcerated for two years because of theft. However, he was arrested again last week after he was caught on the roof of the said prison trying to break in "and blend with the inmates." Federsohn said "Life is so much easier on the inside. They feed you, do your washing and let you watch TV, which I can tell you is a lot more than my mom does. So I thought if I could sneak back in I would blend in with the others and the guards wouldn't notice." *Source*: http://www.wayodd.com/ex-convict-tries-to-break-into-prison/v/3848/

incarceration, because the offender would have already been incapacitated with the standard sentence. This idea will be explored in detail in a later chapter.

Deterrent Effect of Prison Conditions

This paper attempts to estimate the effect of prison conditions on parole waiver rates across states of the U.S. The relationship between prison conditions and deterrence has not been studied extensively in economics, most likely due to data limitations about prison conditions. Katz, Levitt, and Shustorovich (2003) (henceforth KLS) is one of the few papers that examines the impact of prison conditions on crime rates.

KLS contend that given the high discount rate of criminals and the low execution rate (compared to accident rates, and specifically accident or death rates for criminal behavior), it is unlikely that capital punishment would be effective. KLS reveal that the execution rate on death row is only twice the death rate from accidents and violence among all American men, and is approximately the same as for black males between the ages of 15 and 34 in the general population. Among the criminal subpopulation, death rates are likely to be much higher than for those on death row.

KLS argue that that the quality of life in prisons may be a far more important factor on criminal behavior than the death penalty. The lower the quality of life in prison, the greater will be the punishment for a given prison sentence, which suggests that poor prison conditions are likely to deter crime. Unlike capital punishment, prison conditions affect all inmates, regardless of the crime committed. Also, knowledge of prison conditions among potential offenders is likely to be accurate, either because of personal experience or that of acquaintances.

KLS contend that the prison death rate is the best proxy for prison conditions, and that it is likely that prison death rates correlate with many aspects of the unpleasantness of the prison experience. KLS suggest inadequate health care in prison is likely to be the most important factor in determining death rates among prisoners. KLS do not use health care expenditures because those data not consistently available. After controlling for relevant factors, KLS find a strong and robust negative relationship between prison death rates and subsequent crime rates in a state. KLS contend that the magnitude of the relationship is too large to attribute to the fact that a prisoner who dies will never be released (thereby lowering the overall pool of criminals). Therefore, KLS interpret the results as evidence in favor of deterrence.

The rest of this chapter extends the KLS analysis by directly estimating the effect of prison conditions on inmates' welfare, using the frequency of parole waivers as an indicator of the relative unpleasantness of prison life.

Model

Inmates weigh the expected benefit and cost of remaining incarcerated. An inmate will waive his right to a parole hearing if the expected benefit exceeds the expected cost.

An inmate's decision to waive parole is modeled as a binary choice, represented by the variable y_i, where $y_i = 1$ if the inmate waives parole and $y_i = 0$ otherwise. The inmate's net benefit, y_i^*, is an unobservable, continuous function of observable factors and a inmate-specific unobservable factor:

$$y_i^* = f(x) + u_i$$

The inmate's decision to waive parole is therefore:

$$y_i = 1 \; if \; y_i^* > 0$$

$$y_i = 0 \; otherwise$$

Data and Estimation

Estimation procedure

I estimate the parameters of the parole-waiver choice a weighted least squares logit regression for grouped data. Because the dependent variable is constructed from grouped data (the total number of waivers per state divided by the total number of parole-eligible inmates per state) from groups of equal size, the standard assumption of constant variance is violated. This estimation procedure accounts for the different-sized denominators, therefore correcting for heteroscedasticity.

Empirical Model

$$\text{logit}(WAIVE_j) = \beta_0 + \beta_1 PERINMATE_j + \beta_2 INCOME_j + \beta_3 AVGDRATE_j + \beta_4 SOUTH_j + \beta_5 LIT_j + \epsilon_j,$$

where j indexes states, PERINMATE is state expenditure per inmate, INCOME is state income, AVGDRATE is the average death rate in prison over the three year period 2001-2004, SOUTH is dummy variable indicating whether a state is located in the south, and LIT is a dummy variable indicating whether the state faced overcrowding litigation. The waiver data (WAIVE) were collected from departments of corrections and parole boards of states. Table 1.1 lists the states involved in the sample. The waiver rate ranges from less than one percent in Arkansas, Kentucky, and Louisiana, to around 35 percent in, and Massachusetts, Montana and Wyoming. The mean rate is about 10.6 percent. The weighted mean rate is around 8.4 percent.

Explanation of Independent Variables

PERINMATE

This variable refers to the annual expenditures per inmate for states as calculated by the U.S. Department of Justice and includes both capital and operating expenses. Theoretically, a positive relationship between per inmate expenditures and the waiver rate should exist, as the marginal disutility associated with being incarcerated would decrease with additional prison amenities. For 2001, Alabama spends the least on prisons, at $8128, and Maine spends the most at just over $44,379. The mean for all fifty states is $24,053.

INCOME

Income data is per capita state income as measured by the U.S. Bureau of Economic Analysis. Theoretically, the level of state income matters because the return to criminal activity is a function of the income and wealth of a jurisdiction. The expected sign on the level of state income is negative. In rich states, all other things equal, criminals can earn higher returns. When the opportunity cost of remaining in prison is higher, fewer inmates will choose to waive parole hearings.

AVGDRATE

Death rate per prisoner is another indicator of prison conditions.[4] The expected sign on this variable should be negative. Inmates will not wish to remain incarcerated if prison conditions are bad.

Data on prison deaths were obtained from the U.S. Department of Justice.[5] An average death rate was calculated over the five-year period from 2001-2005. The death rate ranges

[4] (Katz, Levitt and Shustorovich 2003)
[5] Bureau of Justice Statistics, Deaths in Custody Statistical Tables, Table 7. Available: http://ojp.usdoj.gov/bjs/dcrp/prisonindex.htm

from about a half-percent in North Dakota to about 1.8 percent in Pennsylvania. The mean for all fifty states is about 1.15 percent.

LIT

This is an overcrowding litigation dummy,[6] and is used to estimate whether there has been a long-run effect on court involvement on the oversight of prisons. A value of 1 indicates that there has been court-ordered oversight of a state's prison system.

SOUTH

The South is commonly perceived as imposing harsher punishments on criminal behavior than other regions of the country.[7] This dummy variable was included to attempt to estimate whether these perceptions are true.

Results

Results from the regression are reported in Table 1.5. Specifications (1) and (2) use observations from all 26 states from which data were obtained. Specifications (3), (4), and (5) do not include states for which parole waiver frequencies were estimated by government officials in response to my queries.

The results strongly suggest that expenditure per inmate is a key determinant in waiver rates. The coefficient on per inmate expenditure is positive and significant for all specifications. An increase in per inmate expenditure of $1,000 would increase the percentage of inmates

[6] Levitt (1996)
[7] Borg (1997)

waiving their parole hearing rights by anywhere from 0.3 percentage points to one percentage point,[8] depending on the specification.[9]

The coefficient on per capita state income suggests a negative effect on waiver rates, and was statistically significant for specifications that do not use estimated values. The estimated marginal effect of $1,000 in per capita state income on the waiver rate varies significantly, from -.1% to approximately -1%.

The coefficient on the average death rate in prison does not have a consistent sign, but is negatively statistically significant at the 10% level for one specification. In the specification that was statistically significant, the marginal effect was approximately a decline of one percentage point in the waiver rate for a 10% increase in the prison death rate.

Both of the dummy variables are statistically significant at the 5% level in both specifications. The SOUTH dummy is negatively related to waiver rates, and the marginal effect between approximately 4 percentage points and 8 percentage points. This also represents an additive effect, which suggests that states in the south, all else equal, have a waiver rate between 4% and 8% lower than the rest of the country, which is quite relative to the average waiver rate of approximately 10%, and lower than that if a population weighted average is used.

[8] The mfx compute, predict(p) dydx at(mean) procedure in *Stata 10* was used to calculate the marginal effects from the glogit regressions The marginal effects with respected to the probability of waiver are calculated by multiplying the parameter estimate by p(1-p)*mean of the independent variable in question.

[9] This increase represents an additive increase, not a percent change. Example: If originally 5% of inmates were waiving their parole hearings, after the $1,000 increase in per inmate expenditures, the predicted value would be 5.3% to 6% of inmates waiving their parole hearings, depending on the specification. All reported marginal effects for this chapter will use this same terminology.

The overcrowding litigation dummy (LIT) is positive and significant in both specifications, with an extremely large marginal effect of over 15 percentage points in both specifications, indicating that states facing overcrowding litigation had much higher rates of inmate parole waivers. This is a somewhat surprising result, suggesting that states may have dramatically improved conditions as a result of the court action.

The results for the two dummy variables should be interpreted with caution given the small overall sample size, and the even smaller subset of states matching the specific dummy criterion.

Conclusion

The regression results support the hypothesis that variation in prison conditions across states is an important determinant of the variation in parole waiver rates. The estimated positive effect of per inmate expenditure on parole waivers is a key explanatory variable is robust in each specification. Other interesting results include the statistical significance of SOUTH and LIT. The results suggest that prison life *is* worse in the South, even after controlling for the smaller per inmate expenditures in the South. Additionally, the significance of the LIT variable suggests that there is some long-term improvement in prison conditions if the system is under court supervision.

Table 1.1 Waiver Rate from States with Data

Massachusetts	0.3570
Montana	0.3560
Wyoming	0.3402
Nebraska	0.2994
Arizona	0.2464
Oklahoma	0.2322
South Carolina	0.1786
Missouri	0.1760
Pennsylvania	0.0918
New Hampshire*	0.0833
Tennessee	0.0832
Colorado	0.0816
Virginia	0.0560
Idaho	0.0413
Nevada*	0.0354
Connecticut	0.0255
Alabama	0.0145
New Jersey	0.0132
Maryland	0.0118
Hawaii*	0.0108
North Dakota	0.0089
Arkansas	0.0042
Mississippi*	0.0039
Louisiana	0.0018
Iowa*	0.0009
Kentucky	0.0006

Note: * denotes an estimated value by state authorities.

Table 1.2 States facing overcrowding litigation

Alabama
Alaska
Arkansas
Delaware
Florida
Mississippi
New Mexico
Oklahoma
Rhode Island
South Carolina
Tennessee
Texas

Source：(Levitt, The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation 1996)

Table 1.3 States classified as South

Alabama
Arkansas
Florida
Georgia
Kentucky
Louisiana
Mississippi
North Carolina
South Carolina
Tennessee
Virginia

Table 1.4 Summary Statistics, Waiver Data

Variable	Obs	Mean	Std. Dev.	Min	Max
Waiver rate	26	0.106	0.124	0.001	0.357
"Yes" to waiver in a state	26	909	1364	4	5466
Total eligible in a state	26	12230	13870	779	66292
State per-inmate expenditure	50	24053	7914	8128	44379
State Income	50	33288	4846	24664	47388
Death rate in prison for state	50	0.0115	0.0024	0.0057	0.0178

Table 1.5 Waiver Rate as Dependent Variable

	(1)	(2)	(3)	(4)	(5)
Per inmate expenditure	0.000173	0.000173	0.000272	0.000267	0.000118
	0.000079	*0.000071*	*0.000071*	*0.000078*	*0.000049*
	2.19	2.44	3.84	3.45	2.42
State Income	-0.00007	-0.00007	-0.00026	-0.00021	
	0.00009	*0.00009*	*0.00008*	*0.00010*	
	-0.85	-0.85	-3.32	-2.19	
Average death rate	63.4	77.0	-249.5	-189.6	
	137.8	*141.3*	*132.9*	*162.8*	
	0.46	0.54	-1.88	-1.16	
South dummy	-2.75		-2.58		
	1.17		*0.90*		
	-2.34		-2.88		
Overcrowding litigation dummy	3.14		2.27		
	1.10		*0.89*		
	2.86		2.56		
Adjusted r-squared	0.317	0.289	0.538	0.362	0.196
N	26	26	21	21	21

Note: Glogit routine used. Standard errors appear in *gray italics*. T-stats appear below std. errors.

CHAPTER TWO: LONG-RUN EFFECTS OF PRISON CONDITIONS ON CRIME RATES

In order to test whether there is a long-run effect of prison conditions on crime rates, the results of Katz, Levitt, and Shustorovich ("KLS") are replicated and extended through the year 2000. Results suggest state fixed effects on the crime rate are determined in part by prison conditions.

Introduction

The deterrent effect of a given prison sentence is typically assumed to be solely a function of the expected length of the prison sentence, with very little attention paid to the conditions of incarceration. Because prison conditions vary across states, the effective deterrent associated with a given prison sentence may be larger in states where prison conditions are relatively harsh. Thus, states with harsher prison conditions may experience lower crime rates. While it is also possible that harsher prison conditions may breed more hardened recidivism, that question is beyond the scope of this study.

Much of the variation in crime rates across states can be explained through analysis of panel data sets if the relevant demographic, economic, and criminal justice system control variables are included.[1] The estimated coefficients on the state-fixed effects from such panel data can be interpreted as measures of state-specific crime not explained by the crime model specification, and may contain information on persistent crime differences across states that

[1] (Katz, Levitt and Shustorovich 2003)

result from long-run effects of various factors. These factors may include prison conditions, cultural influences, and other state-specific variables that affect crime. This paper uses the state fixed-effects coefficients as dependent variables in a new regression that uses measures of prison conditions as independent variables in an attempt to determine whether prison conditions can help explain some long-run differences in crime rates across the states of the U.S.

Data and Estimation

In order to generate the state fixed effects, the study of Katz, Levitt, and Shustorovich ["KLS"] is replicated over a larger time period. The KLS study encompassed the years 1950-1990. For this paper, the time period covered is 1950-2000.

Empirical Model

The specification used by KLS is

$$CRIME_{st} = \beta_1 TIS_{st} + \beta_2 SG_{st} + \beta_3 DEATH_{st} + B_4 EXECUTE_{st} + \mathrm{X}_{st}\Gamma + \lambda_s + \delta_t + \varepsilon_{st},$$

where s indexes states and t indexes time. CRIME is the crime rate per 100,000 residents, DEATH is the death rate per 1,000 state prisoners, and $\mathrm{EXECUTE}$ is the execution rate per 1,000 state prisoners. X is a vector of criminal justice, economic, and demographic variables. The indicator variables λ and δ represent state fixed effects and time dummies.

The original KLS study focused on the effect of DEATH and $\mathrm{EXECUTE}$ on the crime rate. Data on crime rates were collected from the Federal Bureau of Investigation's (FBI) Uniform Crime Report (UCR), which contains crimes reported to police. Rape was removed from the violent crime numbers, because it was not reported over the entire time period of the study.

KLS estimate their model for three different crime categories – murder, violent crime, and property crime. I use the coefficients on the state fixed effects from three crime models in separate specifications.[2] Measures of prison conditions could not be added to the KLS specification because reliable time-series data are not available over the full sample period. Instead, the state fixed effect is used as a dependent variable in a cross-section regression with current measurements of prison conditions as the independent variables. This specification preserves the variation present in a panel data set, but it allows for inclusion of the cross-sectional prison-conditions variables.

The following specification is used in a second-stage cross-section regression:

$$SFE_s = \phi_1 ASSAULT_s + \phi_2 SPEND_s + \phi_3 AIDS_s + \phi_4 DRUG_s + \phi_5 REPORT_s + \phi_6 SOUTH_s + \phi_7 LIT_s + \epsilon_s,$$

where s indexes states. SFE is the estimated value of the fixed effects for state$_s$. ASSAULT is the inmate assault rate in 2000. SPEND is annual per inmate expenditures for 2001. AIDS is the state AIDS rate in 2000. DRUG is the percentage of inmates who were given psychotropic medication in 2000. REPORT is the number of disciplinary reports filed by the prison authority divided by the number of inmates in 2000. SOUTH is a dummy variable indicating whether the state is located in what is traditionally known as the American south.[3] LIT is a dummy variable indicating whether there was prison-overcrowding litigation involving the state.

[2] KLS has multiple specifications for each type of crime. I use the specification that includes all control variables along with a state time trend.
[3] Insert footnote

Explanation of Independent Variables

ASSAULT

The inmate assault rate is included as an independent variable because it may serve as an indicator of prison conditions. As inmate assault becomes more common, incarceration is likely to become more unpleasant for most offenders. This data were obtained from the 2000 Census of Adult Correctional Facilities, and was aggregated to the state level.

SPEND

Per-inmate expenditure is another measure of overall prison conditions within a state. If states spend little on their prison system on a per inmate basis, prison conditions are probably more unpleasant. This data were obtained from the Bureau of Justice Statistics for the year 2001.

AIDS

AIDS is the AIDS rate per 100,000 residents of the state in the year 2000. This variable was included because the threat of contracting AIDS while incarcerated may increase the expected cost of incarceration, thus the threat of AIDS may function as a deterrent for crime. Effectively, this variable is another indicator of prison conditions. The statewide rate was used instead of the prison rate because potential offenders may have better knowledge of the statewide rate than the rate within the prison system.

DRUG

As the results in chapter four suggest with respect to the effect on contraband seizures on staff assault rates, there seems to be a relationship between inmate satisfaction and the availability of psychoactive drugs. States in which it is easy for inmates to obtain psychotropic drugs may offer a relatively less unpleasant prison experience. If so, then this variable is

another indicator of prison conditions. This data were obtained from the 2000 *Census of Adult Correctional Facilities*, and has been aggregated to the state level.

REPORT

The number of disciplinary reports for inmates is the total number of documented cases in which an inmate has broken the rules. This value is divided by the total number of inmates to convert it into a rate. This variable may be an indicator of how strict a prison is. Some inmates may prefer a strict prison, while others may not. On balance, it is presumed to have a negative relationship with inmates' satisfaction. These data were obtained from the 2000 *Census of Adult Correctional Facilities*, and has been aggregated to the state level.

SOUTH

Results reported in Chapter One suggest that prison conditions in the South may be more unpleasant than in other parts of the country. If so, this fact should be accounted for in the current estimation on the crime rate in Southern states.

LIT

In chapter one, the dummy variable for whether a state's prison system was under court order were shown to be associated with higher parole-waiver rates. It is there also included in this current specification. Observations of this variable come from Levitt's (1996) study on the effect of prison overcrowding legislation.

Results

Murder Rates

Table 2.1, column 1 displays the results for the state fixed-effects regression for murder rates. For the most part, the signs on the coefficients are as expected. The inmate assault rate is negatively related to the state fixed effect for murder rates, suggesting that more violent prisons

tend to deter murder. Per-inmate expenditure is positively related to the murder rate, suggesting that some variance in the residual murder rate across states can be explained by how much a state spends per inmate. Higher spending per inmate may be associated with a diminished deterrent effect of incarceration, but the results are not statistically significant.

The state AIDS rate appears to have no effect on murder rates, thus the threat of contracting AIDS during incarceration does not appear to deter murders. Disciplinary reports per inmate suggest that states with strict prisons may deter murder, but the results are not significant.

The South appears to have a higher murder rate than would otherwise be expected based on the observable determinants of statewide murder rates.[4] As will be shown below, this stands in contradiction to the estimates for other violent crimes and property crimes.

Although not statistically significant, there is a negative relationship between states that faced overcrowding litigation and the murder rate, suggesting that overcrowding may deter murder. A related but slightly different interpretation is that prison overcrowding is a signal that a state is "tough" on crime, by virtue of being "tough" on criminals.

Violent Crime Rates

Table 2.2, column 2 displays the results for the state fixed effects regression for violent crime rates. The results for the violent crime rate regression are much stronger than for murder rates, especially for the dummy variables. The results suggest that violent crime rates are lower in the South and lower in states that faced overcrowding litigation. These two variables explain

[4] All relevant demographic, economic, and legal control variables were included in the initial "KLS" regression, and those factors explain much of why the South has a higher murder rate; however even taking those factors into account, the murder rate in the South is higher than predicted.

almost 50% of the variation in the state fixed effects for violent crime rates. The results are especially strong for the litigation dummy, reinforcing the results from the murder rate estimates. Additionally, the other explanatory variables generally support the hypothesis that prison conditions affect crime rates. The inmate assault rate and AIDS infection rate is statistically significant, but higher spending per inmate is not.

Property Crime Rates

Table 2.3, column 1 displays the results for the state fixed effects regression for murder rates. The results are striking. The magnitude of the coefficients on the two dummy variables suggests a very strong negative relationship with property crime rates. States in the South and states that faced overcrowding litigation appear to have much less property crime than other states, controlling for other factors.

Conclusion

The results of the regression analysis strongly suggest that some of the cross-state differences in violent crime rates and property crime rates can be explained by indicators of prison conditions. Some of the cross-state variation in murder rates can also be explained, but the relationship is much weaker. In general, crime rates other than murder to be lower in the South than would be expected on the basis of observable factors, and states that faced overcrowding litigation appear to be tough on crime. The results are consistent with the hypothesis that variation in prison conditions across states explains some of differences in crime rates across states over the long run.

Table 2.1 Impact of Prison Conditions on State-Fixed Effects for *Murder Rates*

	(1)	(2)	(3)
Inmate assaults per inmate	-1367		-1231
	744.41		*746.69*
	-1.84		-1.65
Expenditures per inmate	0.00438		0.00309
	0.0028		*0.0025*
	1.58		1.25
State AIDS rate	0.0880		0.5193
	2.528		*2.511*
	0.03		0.21
% inmates psychotropic drugs	785		821
	387		*382*
	2.03		2.15
Disciplinary reports per inmate	-23.69		-20.69
	25.47		*25.68*
	-0.93		-0.81
South dummy	91.59	44.68	
	53.05	*52.34*	
	1.73	0.85	
Overcrowding litigation dummy	-56.30	-73.63	
	54.47	*52.34*	
	-1.03	-1.41	
R-squared	0.266	0.043	0.205
Adjusted r-squared	0.141	0.001	0.113

Note: Standard errors appear in *gray italics*. T-stats appear below std. errors. Sample size is 49. Alaska is the omitted state.

Table 2.2 Impact of Prison Conditions on State-Fixed Effects for *Violent Crime Rates*

	(1)	(2)	(3)
Inmate assaults per inmate	-86100		-65256
	37090		*45666*
	-2.32		-1.43
Expenditures per inmate	-0.005		0.298
	0.138		*0.152*
	-0.04		1.96
State AIDS rate	-461		-589
	126		*154*
	-3.66		-3.84
% inmates psychotropic drugs	50509		72945
	19296		*23346*
	2.62		3.12
Disciplinary reports per inmate	-1897		-1272
	1269		*1570*
	-1.50		-0.81
South dummy	-6257	-8656	
	2643	*3217*	
	-2.37	-2.69	
Overcrowding litigation dummy	-10324	-13287.6	
	2714	*3217*	
	-3.80	-4.13	
R-squared	0.732	0.468	0.562
Adjusted r-squared	0.686	0.445	0.511

Note: Standard errors appear in *gray italics*. T-stats appear below std. errors. Sample size is 49. Alaska is the omitted state.

Table 2.3 Impact of Prison Conditions on State-Fixed Effects for *Property Crime Rates*

	(1)	(2)	(3)
Inmate assaults per inmate	-216494		-152169
	121404		*184073*
	-1.78		-0.83
Expenditures per inmate	0.377		2.036
	0.453		*0.613*
	0.83		3.32
State AIDS rate	343		-333
	412		*619*
	0.83		-0.54
% inmates psychotropic drugs	99511		193149
	63160		*94103*
	1.58		2.05
Disciplinary reports per inmate	-488		1684
	4153		*6329*
	-0.12		0.27
South dummy	-48647	-52419	
	8652	*8052*	
	-5.62	-6.51	
Overcrowding litigation dummy	-34312	-34254	
	8884	*8052*	
	-3.86	-4.25	
R-squared	0.730	0.686	0.331
Adjusted r-squared	0.683	0.673	0.253

Note: Standard errors appear in *gray italics*. T-stats appear below std. errors. Sample size is 49. Alaska is the omitted state.

CHAPTER THREE: THE EFFECT OF TRUTH-IN-SENTENCING LAWS AND SENTENCING GUIDELINES ON THE CRIME RATE

This study explores the impact of truth-in-sentencing laws and sentencing guidelines on crime rates. Truth-in-sentencing laws and sentencing guidelines represent a shift in policy towards determinate sentencing and away from discretion in the criminal justice system.

Introduction

In the last twenty-five years many states have enacted truth-in-sentencing laws and sentencing guidelines, reflecting the nationwide shift from indeterminate to determinate sentencing. Through the 1970s, all states had criminal-justice systems that granted much authority to judges and parole boards. Judicial systems that grant such discretionary power are referred to as "indeterminate sentencing" regimes. In contrast, pure "determinate sentencing" regimes do not grant judges or parole boards the power to affect the time served by a convicted offender.

Starting in the early 1980s, determinate-sentencing laws were enacted in many states. The two cases of determinate-sentencing reform analyzed in this paper are truth-in-sentencing laws and sentencing guidelines. Truth-in-sentencing ("TIS") laws severely limit the power of state parole boards by setting a minimum mandatory percentage of a sentence that a violent offender must serve to be parole-eligible.[1] Sentencing guidelines are rules that set out a

[1] In most states, it is 85%.

uniform sentencing policy for convicted offenders requiring judges to adhere to specific sentencing laws, which are determined by state sentencing commissions.

Thirty states have implemented TIS laws, and eighteen states have implemented sentencing guidelines. The theoretical prediction on TIS laws is clear: increasing the penalty for violent crimes should lead to a reduction in the violent crime rate. Additionally, analyzing the impacts of TIS laws may tell us something about the effectiveness of state parole boards, because TIS laws diminish their authority.

The theoretical prediction on the effect of sentencing guidelines on the crime rate is not as clear. Sentencing guidelines reduce the variance of penalties associated with conviction, and thus should lead to reduced crime rates if criminals are indeed risk-seekers.[2] Additionally, analyzing the effects of sentencing guidelines may tell us how efficient judges are in assessing the true recidivism risk of offenders. If judges were in fact using this information efficiently, then crime rates may go up in response to the curtailing of judicial discretion.

In addition to the opportunity that cross-state variation in TIS legislation offers for assessing the effect of such laws on the crime rate, this variation also makes it possible to study the relative importance of deterrence versus incapacitation. Given that TIS laws apply to violent criminals, those criminals will substitute toward property crimes if the deterrence effect dominates. If the incapacitation effect dominates, both violent crime rates and property crime rates should go down, because more criminals are behind bars.

[2] See Becker (1968).

The question of why so many states (and the federal system) have moved toward determinate-sentencing regimes is an interesting one. Presumably, judges and parole boards have some information about the recidivism risk of an offender, along with a comparative advantage in processing that information. Why prevent them from using such information? The explanation must be that state legislatures have a divergent interest from state judges and parole boards, and that for at least one of the three the objective is not optimal crime policy.

Literature Review

Dharmapala, Garoupa, and Shepherd (2006) ("DGS") explore the idea of divergent interests among the legislature, judiciary, and parole boards at the state level. Determinate sentencing reforms allow state legislatures to re-assert their authority over the judiciary and parole boards. DGS develop a model that predicts that a state ismore likely to move toward determinate sentencing when the decisions of judges and parole boards are at odds with the goals of the legislature. Parole boards are appointed by state governors, and judges are either appointed by state governors or elected. All of these groups are likely to be influenced by political considerations. DGS find that determinate-sentencing laws are more likely with a longer history of divided government (i.e., when the governor's party affiliation is different from the party that holds a majority in the houses of the legislature).

Several papers have examined the effects of determinate-sentencing regimes on crime. Shepherd (2002) examines the effects of TIS laws using a county-level data set. She finds that TIS laws decrease murders by 16 percent, aggravated assaults by 12 percent, robberies by 24 percent, rapes by 12 percent, and larcenies by 3 percent. Additionally, Shepherd finds that

offenders substitute into property crimes in response: burglaries increased by 20 percent and auto thefts by 15 percent.

Mead and Waldfogel (1998) examine the effect of sentencing guidelines on the cost of punishment. When judges have discretion, they tend to substitute fines for prison sentences when the offender has the ability to pay. Sentencing guidelines define minimum and maximum sentences a judge may impose, so judges may be prevented from efficiently substituting fines for prison time. Meade and Waldfogel find that sentencing guidelines increase the cost of punishment by almost 5% of the total imprisonment cost of federal offenders.

Anderson, Kling, and Stith (1999) analyze the impact of the Federal Sentencing Guidelines on interjudge sentencing disparity, a measure of the variance of sentence length across judges. They find that the expected difference between two typical judges in the average sentence length was about 17 percent (or 4.9 months) in 1986-87, before sentencing guidelines, and fell to about 11 percent (or 3.9 months) in 1988-93 after the implementation of the sentencing guidelines.

Parker and Atkins (1999) analyze the impact of the federal Sentencing Commission's 1991 sentencing guidelines for corporations convicted of federal crimes. Despite the supposed intent of increasing corporate fines, they find no statistically significant change in monetary penalties associated with the implementation of the 1991 guidelines.

Shepherd (2007) examines the impact that sentencing guidelines have on crime rates. She finds that sentencing guidelines have been associated with increases in crime, and provides some theoretical arguments as to why this would be the case. First, judges may be able to

identify high-risk offenders, but sentence enhancements limit judges' ability to impose long sentence on them. Second, sentencing guidelines limit the ability of judges to impose very short sentences, and the legal system as a whole may be unwilling to impose higher sentences on these lower-risk offenders. Instead the judges and juries may be acquitting such offenders, or the case may not even be prosecuted. Third, if longer sentences are imposed on low-risk offenders, these offenders may become career criminals in response to the negative impact long sentences have on legitimate employment prospects. Fourth, if offenders are actually risk-averse rather than risk-loving, decreasing the variance in the expected penalty will reduce the deterrent effect of conviction.

Using a state-level panel data set, Shepherd finds that sentencing guidelines are associated with higher crime rates. There is a statistically significant increase in both violent crime rates and property crimes rates in states adopting sentencing guidelines.

Data and Estimation

I use a similar methodology to Shepherd (2007) in this paper. I use state-level panel data to determine the impact of both sentencing guidelines and TIS laws. I use the Katz-Levitt-Shustorovich ("KLS") data set, extended through 1999, to measure the impact of these laws. I add dummy variables for TIS and sentencing guidelines to their specification, and include all of their variables. The KLS specification for crime rates is very similar to the specification Shepherd uses, but not all the control variables are identical.

Empirical Model

I estimate the equation:

$$CRIME_{st} = \beta_1 TIS_{st} + \beta_2 SG_{st} + \beta_3 DEATH_{st} + B_4 EXECUTE_{st} + \mathrm{X}_{st}\Gamma + \lambda_s + \delta_t + \varepsilon_{st},$$

where s indexes states and t corresponds to time. $CRIME$ is the crime rate per 100,000 residents, TIS is a dummy variable indicating whether the state had a TIS law, SG is a dummy variable indicating whether the state had sentencing guidelines, $DEATH$ is the death rate per 1,000 state prisoners, and $EXECUTE$ is the execution rate per 1,000 state prisoners. X is a vector of criminal-justice, economic, and demographic variables. The indicator variables λ and δ represent state and year fixed effects.

The original KLS study focused on the effect of $DEATH$ and $EXECUTE$ on the crime rate. In this chapter, three different crime rates are used as the dependent variable in separate specifications: the murder rate, the violent crime rate, and the property crime rate.

The predicted sign on TIS with respect to the property crime rate is ambiguous, depending on whether the deterrent effect or the incapacitation effect dominates. The sign on SG is ambiguous for all three specifications, for the reasons discussed above.

Results

The results suggest that TIS laws and sentencing guidelines do affect crime rates. For murder rates (Table 3.3), most of the specifications indicate that TIS laws reduce murders by between half a murder and one murder per 100,000 residents, while sentencing guidelines tend to increase murders by about the same amount. Both dummy variables are significant in some but not all specifications estimated.

For violent crime (Table 3.4), TIS laws are associated with a reduction of offenses of between 28 and 113 per 100,00 residents, depending on the specification. The estimated coefficient on TIS is statistically significant at the 5% level in four of the eight specifications, and one more is statistically significant at the 10% level. With respect to sentencing guidelines, the

average increase is about 20 offenses per 100,000 residents and three of the eight are significant at the 10% level. However, the estimated coefficients on sentencing guidelines are not positive for all specifications.

The results for property crime (Table 3.5) are interesting, as the sign on property crimes with respect to TIS laws measures the relative importance of deterrence versus incapacitation, as discussed earlier. Unlike Shepherd (2002), my results suggest the incapacitation effect dominates: the coefficient estimates on TIS are negative in seven of eight specifications, indicating that violent offenders do not substitute towards property crime in response to TIS laws. Sentencing guidelines appear to have more effect on property crimes than for violent crimes, achieving statistical significance in almost all specifications, and indicating that sentencing guidelines increase property crimes on average of about 200 offenses per 100,000 residents.

Conclusion

The result that sentencing guidelines appear to increase crime rates is somewhat surprising. Combined with the result that Truth-in-sentencing laws appear to reduce crime rates, and the implication is that the move away from a discretionary regime offers mixed results. These results tend to support the argument that parole boards were 'soft' on crime, but do not support the argument that judges were. To the contrary, there is evidence that judges were effectively using specific information available to them when sentencing offenders.

Table 3.1 States with *TIS Laws* and *year enacted*.

Arizona	1993	New Hampshire	1982
California	1994	New Jersey	1997
Connecticut	1994	New York	1995
Delaware	1989	North Carolina	1993
Florida	1995	North Dakota	1995
Georgia	1994	Ohio	1995
Illinois	1995	Oklahoma	1997
Iowa	1996	Oregon	1989
Kansas	1992	Pennsylvania	1911
Louisiana	1995	South Carolina	1995
Maine	1995	South Dakota	1996
Michigan	1994	Tennessee	1995
Minnesota	1992	Virginia	1994
Mississippi	1995	Washington	1990
Missouri	1994	Wisconsin	1999

Source: (Sabol, et al. 2002)

Table 3.2 States with *Sentencing Guidelines* and *year enacted*.

Arkansas	1994	North Carolina	1994
Delaware	1987	Ohio	1996
Florida	1983	Oregon	1989
Kansas	1993	Pennsylvania	1982
Louisiana	1992	Tennessee	1989
Maryland	1983	Utah	1993
Michigan	1981	Virginia	1991
Minnesota	1980	Washington	1984
Missouri	1997	Wisconsin	1985

Source: (Sabol, et al. 2002)

Table 3.3 Effect of TIS Laws and Sentencing Guidelines on *Murder Rates*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Truth-in-Sentencing dummy	0.11	-0.50	-0.67	-0.94	-0.97	-1.09	-0.73	-0.93
	1.01	*0.63*	*0.56*	*0.67*	*0.90*	*0.56*	*0.76*	*0.46*
	0.11	-0.79	-1.19	-1.39	-1.08	-1.93	-0.96	-2.01
Sentencing guidelines dummy	0.00	0.45	0.29	0.78	1.43	1.03	0.62	0.53
	0.93	*0.47*	*0.60*	*0.39*	*0.66*	*0.34*	*0.45*	*0.43*
	0.00	0.95	0.47	2.00	2.17	3.07	1.38	1.23
Prison deaths/1000 prisoners		-0.11		-0.13		-0.05		-0.02
		0.06		*0.05*		*0.04*		*0.03*
		-1.96		-2.48		-1.20		-0.51
Executions/1000 prisoners		-0.60		-0.42		-0.26		-0.24
		0.37		*0.39*		*0.18*		*0.14*
		-1.64		-1.08		-1.46		-1.66
Prisoners/crime(-1)		-7.98		-12.81		-5.74		-6.54
		5.67		*6.68*		*4.74*		*4.31*
		-1.41		-1.92		-1.21		-1.52
Prisoners/100,000(-1)		0.00		0.01		-0.01		-0.01
		0.01		*0.01*		*0.01*		*0.00*
		0.41		0.95		-1.85		-1.72
*Real per capita income (*1000)*		0.00		0.03		0.06		0.07
		0.02		*0.03*		*0.02*		*0.02*
		0.18		1.11		2.84		3.97
Insured unemployment rate		-0.26		-0.12		-0.14		-0.07
		0.10		*0.10*		*0.06*		*0.06*
		-2.49		-1.25		-2.33		-1.25
Black (%)		34.75		31.83		23.09		17.04
		8.62		*11.19*		*15.88*		*14.99*
		4.03		2.85		1.45		1.14
Urban (%)		-3.07		-10.95		-3.39		1.36
		6.01		*6.52*		*9.50*		*8.56*
		-0.51		-1.68		-0.36		0.16
0-24-year-olds (%)		31.69		19.04		-0.34		8.62
		18.29		*11.66*		*8.98*		*8.50*
		1.73		1.63		-0.04		1.01
25-44-year-olds (%)		1.29		-17.82		-20.25		-31.22
		17.84		*17.63*		*24.26*		*20.11*
		0.07		-1.01		-0.83		-1.55
*Infant mortality rate (*1000)*		0.00		0.00		0.00		0.00
		0.00		*0.00*		*0.00*		*0.00*
		0.16		-0.22		0.64		1.69
Adjusted r-squared	0.6830	0.8422	0.8208	0.8697	0.8777	0.9079	0.9378	0.9413
Region-year interactions?	No	No	Yes	Yes	No	No	No	No
State trends?	No	No	No	No	Yes	Yes	No	No
State-decade interactions?	No	No	No	No	No	No	Yes	Yes

Note: Standard errors appear in *gray italics*. T-stats appear below std. errors.

Table 3.4 Effect of TIS Laws and Sentencing Guidelines on *Violent Crime Rates*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Truth-in-Sentencing dummy	-28.46	-46.73	-30.39	-53.10	-113.00	-102.98	-69.22	-67.74
	21.59	*27.18*	*24.19*	*35.56*	*46.03*	*36.06*	*32.47*	*26.42*
	-1.32	-1.72	-1.26	-1.49	-2.45	-2.86	-2.13	-2.56
Sentencing guidelines dummy	-22.79	10.49	-29.21	6.17	72.74	49.06	35.67	34.38
	44.96	*34.44*	*49.99*	*33.02*	*45.20*	*27.26*	*19.67*	*19.89*
	-0.51	0.30	-0.58	0.19	1.61	1.80	1.81	1.73
Prison deaths/1000 prisoners		-7.48		-8.74		-3.69		-1.37
		2.62		*2.44*		*1.77*		*0.94*
		-2.86		-3.59		-2.09		-1.47
Executions/1000 prisoners		-34.30		-21.12		3.29		-1.18
		13.51		*11.77*		*7.46*		*3.05*
		-2.54		-1.80		0.44		-0.39
Prisoners/crime(-1)		-1164.75		-1290.74		-628.29		-743.33
		258.46		*252.25*		*255.53*		*195.50*
		-4.51		-5.12		-2.46		-3.80
Prisoners/100,000(-1)		0.83		0.84		0.02		0.16
		0.18		*0.20*		*0.15*		*0.15*
		4.70		4.29		0.13		1.02
*Real per capita income (*1000)*		1.61		1.72		-0.56		1.03
		1.69		*1.98*		*1.48*		*0.84*
		0.95		0.87		-0.38		1.23
Insured unemployment rate		-7.37		2.94		-3.93		4.11
		7.76		*5.47*		*4.81*		*3.49*
		-0.95		0.54		-0.82		1.18
Black (%)		1865.00		2012.80		2671.72		1632.55
		889.59		*1037.72*		*1082.45*		*1077.36*
		2.10		1.94		2.47		1.52
Urban (%)		868.48		619.79		455.84		1057.94
		450.12		*578.23*		*490.85*		*520.67*
		1.93		1.07		0.93		2.03
0-24-year-olds (%)		1653.49		1413.55		-470.67		-419.69
		1137.25		*1086.71*		*508.83*		*599.17*
		1.45		1.30		-0.92		-0.70
25-44-year-olds (%)		-2454.5		-2576.0		-2250.5		-1202.7
		2012.40		*2333.73*		*1737.25*		*1362.41*
		-1.22		-1.10		-1.30		-0.88
*Infant mortality rate (*1000)*		-0.01		0.03		0.08		0.07
		0.05		*0.05*		*0.04*		*0.03*
		-0.26		0.53		1.89		2.64
		0.80		*0.60*		*0.07*		*0.01*
Adjusted r-squared	0.8323	0.9042	0.8629	0.9220	0.9230	0.9516	0.9624	0.9767
Region-year interactions?	No	No	Yes	Yes	No	No	No	No
State trends?	No	No	No	No	Yes	Yes	No	No
State-decade interactions?	No	No	No	No	No	No	Yes	Yes

Note: Standard errors appear in *gray italics*. T-stats appear below std. errors.

Table 3.5 Effect of TIS law and Sentencing Guidelines on *Property Crime Rates*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Truth-in-Sentencing dummy	-92.16	-104.43	-74.71	-86.54	-210.97	-198.91	-109.49	-134.24
	83.42	*89.67*	*81.72*	*85.79*	*148.65*	*111.87*	*99.86*	*68.33*
	-1.10	-1.16	-0.91	-1.01	-1.42	-1.78	-1.10	-1.96
Sentencing guidelines dummy	177.76	191.32	112.14	121.14	339.61	233.54	187.52	183.88
	96.23	*74.51*	*53.36*	*46.72*	*126.34*	*77.85*	*66.02*	*66.31*
	1.85	2.57	2.10	2.59	2.69	3.00	2.84	2.77
Prison deaths/1000 prisoners		-8.64		-10.24		-2.40		-5.90
		10.35		*8.45*		*9.00*		*5.23*
		-0.83		-1.21		-0.27		-1.13
Executions/1000 prisoners		-24.92		-46.44		23.22		-1.26
		30.15		*30.72*		*29.10*		*9.27*
		-0.83		-1.51		0.80		-0.14
Prisoners/crime(-1)		-2551.72		-2029.52		-658.65		-1728.43
		700.95		*663.49*		*813.08*		*528.94*
		-3.64		-3.06		-0.81		-3.27
Prisoners/100,000(-1)		0.95		0.42		-1.82		-0.79
		0.45		*0.53*		*0.64*		*0.46*
		2.10		0.78		-2.83		-1.71
*Real per capita income (*1000)*		2.56		0.68		-2.23		-4.43
		2.71		*3.74*		*4.60*		*3.19*
		0.94		0.18		-0.48		-1.39
Insured unemployment rate		39.67		34.82		31.74		37.70
		16.51		*12.85*		*13.37*		*12.76*
		2.40		2.71		2.37		2.95
Black (%)		508.36		726.92		9922.53		3545.25
		1963.22		*1948.79*		*4860.64*		*3770.65*
		0.26		0.37		2.04		0.94
Urban (%)		769.07		884.37		-850.77		708.07
		1189.31		*1338.38*		*1999.03*		*1639.51*
		0.65		0.66		-0.43		0.43
0-24-year-olds (%)		2393.18		3425.19		708.32		1034.23
		1487.88		*1632.59*		*2257.68*		*1536.96*
		1.61		2.10		0.31		0.67
25-44-year-olds (%)		-4634.53		-3798.11		-7285.41		-4872.98
		3454.54		*3525.97*		*6000.02*		*3112.77*
		-1.34		-1.08		-1.21		-1.57
*Infant mortality rate (*1000)*		-0.20		-0.06		0.07		0.02
		0.13		*0.08*		*0.10*		*0.07*
		-1.49		-0.67		0.64		0.33
Adjusted r-squared	0.8323	0.8909	0.9021	0.9247	0.8911	0.9277	0.9742	0.9649
Region-year interactions?	No	No	Yes	Yes	No	No	No	No
State trends?	No	No	No	No	Yes	Yes	No	No
State-decade interactions?	No	No	No	No	No	No	Yes	Yes

Note: Standard errors appear in *gray italics*. T-stats appear below std. errors.

CHAPTER FOUR: SOME DETERMINANTS OF INMATE MISCONDUCT

Using data from the Bureau of Justice Statistics' Census of State and Federal Adult Correctional Facilities, I analyze the effect of limiting discretionary parole, the death penalty, and also prison conditions, on measures of inmate misconduct. I find that many of these factors appear to affect the rates of inmate misconduct.

Introduction

In states with discretionary parole (i.e., the authority of a parole board to reduce an inmate's sentence), one reason for that granting that discretion is to create incentives for inmates to follow prison rules of behavior. Some of those prison rules attempt to control actual criminal behavior during incarceration, while others attempt to foster activities intended to rehabilitate inmates and reduce recidivism.

States began moving away from discretionary parole in the 1980s toward a system of determinate sentencing with mandatory supervised release. By 1989 eight states had abolished discretionary parole;[3] in the 1990s, another eight states abolished discretionary parole and four other states abolished discretionary parole for certain violent crimes. Additionally, 30 states have adopted truth-in-sentencing legislation, which reduces state parole board authority to extent to which any discretion that remains may not be of sufficient magnitude to affect inmate behavior.

[3] (Hughes, Wilson and Beck 2001)

This paper investigates whether the elimination of discretionary parole leads to a change in inmate behavior: if inmates no longer are rewarded in the form of a reduction in sentence length for good behavior, are they less likely to behave well? Additionally, this paper will attempt to determine which aspects of prison conditions affect inmate behavior.

The consensus of the sociological literature on the subject of prison violence suggests that prison overcrowding is a central determinant of prison violence. This hypothesis will be tested in this paper.

Data and Estimation

I perform a cross-sectional study of the determinants of prison misconduct using the *1990 Census of Adult Correctional Facilities* at the institutional level, using measures of prison conditions as the explanatory variables. There are 1287 adult correctional facilities in the U.S. that are included *1990 Census of Adult Correctional Facilities*. The number of inmates incarcerated at these facilities ranges from less than 10 at a few small facilities to over 5,000 at some large maximum-security prisons. A potential problem of the data set is purposeful reporting biases. Authorities at prison facilities may have an incentive to under-report figures such as assaults on guards and other inmates in order to avoid bad publicity. Reports of violence in prison are generally considered to be substantially understated.[4]

Empirical Specification

I model the number of assaults in a prison as a function of observable characteristics of a prison:

[4] "What gets reported is the tip of the iceberg," said Cindy Struckman-Johnson, professor of social psychology at the University of South Dakota and a member of the National Prison Rape Elimination Commission. Source: *Study: Sex crimes in prisons underreported*, USA Today, July 30, 2006.

$$ASSAULTS\ PER\ GUARD_s = \beta_1 INMATES_s + \beta_2 DECREE_s + \beta_3 MAX_s + \beta_4 BLACK_s +$$

$$\beta_4 CONTRA_s + \beta_6 SPACE_s + \beta_7 SUICIDE_s + \beta_8 EDU_s + \beta_9 OPEXP_s + \beta_{10} CAPEXP_s + \epsilon_s,$$

where ASSAULTS PER GUARD is the number of assaults on prison staff per correctional officer. INMATES is the total number of inmates incarcerated at the facility, DECREE is a dummy variable indicating whether the facility was under court order for overcrowding, MAX is the percentage of inmates who are incarcerated under maximum security conditions, BLACK is the percentage of inmates who are black, CONTRA is the number of contraband seizures per inmate, SPACE is the confinement space in square feet of the prison cell, SUICIDE is the suicide rate among inmates, EDU is the percentage of inmates who are enrolled in basic education classes, OPEXP is the operating expenditures per inmate, and CAPEXP is the capital expenditure per inmate.

Due to the presence of heteroscedasticity in the regression, Huber – White robust standard errors were used. Robust standard errors use heteroscedasticity consistent covariance matrix to estimate the standard errors.

Assaults per guard rather than the total assaults was used as the dependent variable because of possible endogeneity problem associated with using the number of guards as an independent variable and the level of assaults as the dependent variable. Using assaults per guard will produce consistent parameter estimates.

Independent variables

The independent variables are indicators of prison conditions.

INMATES

This variable indicates the number of inmates, measures the size of the institution.

DECREE

This variable indicates whether the institution is under a court order to reduce overcrowding as of 1990. Other studies have found that overcrowding leads to prison violence, so the expected sign on this variable is positive[5].

MAX

This variable is the percentage of inmates who are incarcerated under maximum-security conditions given that more violent offenders are housed in maximum security facilities. This variable is likely either to lead to more assaults or more guards to control inmates' behavior.

BLACK

This variable is the percentage of inmates who are African-American.

CONTRA

This variable is the number of seizures of contraband per institution-inmate-year. Contraband seizures may affect staff assaults in two ways: (1) Contraband seizures involve close contact between guards and inmates that create opportunities for assaults, and (2) access to contraband, especially controlled substances, may play a large role in prison life. Limiting access to contraband may result in inmate retribution against guards.

SPACE

This variable is the average confinement space per cell. Small confinement spaces may have adverse psychological effects on inmates, making assaults more likely.

[5] (Elkland-Olson 1986)

SUICIDE

This variable is the suicide rate among inmates, a possible indicator of overall conditions at the facility. Poor conditions may lead to more assaults on guards.

EDU

This variable is the percent of inmates who are enrolled in basic education courses. This variable is used to measure how interested inmates are in rehabilitation. If inmates are serious about rehabilitation, they are less likely to assault staff.

OPEXP

This variable is operating expenditure per inmate. Facilities with larger operating expenditures may have amenities that inmates value, possibly affecting inmate behavior and making it less likely that inmates assault staff.

CAPEX

This variable is capital expenditure per inmate, and may also be a measure of prison amenities.

Results

One striking result is the magnitude of the contraband-seizure coefficient. Each contraband seizure is associated with an additional assault per guard and the coefficient estimate is significant at the 1% level.

The number of inmates is positively related to assaults per guard and the coefficient estimate is significant at the 1% level. There are multiple interpretations for such a result. One interpretation is a size effect – larger facilities experience more assaults per guard. The other interpretation is that the number of inmates could be an indicator variable for possible prison overcrowding.

Inmate participation in basic education is associated with fewer assaults on staff. Participation in such programs may simply be a signal of an inmate's interest in rehabilitation, or participation itself may act to reduce inmate misconduct. The coefficient estimate is significant at the 1% level. Whether a prison is under court order for overcrowding is unrelated to assaults per guard.

The coefficient estimate on confinement space is negative, but it is not statistically significant at the 10% level. The coefficient estimate on operating expenditures is negative, but is not statistically significant at the 10% level. Capital expenditure appears to be unrelated to assaults per guard.

The percentage of inmates housed in maximum-security conditions is positively related to guard assaults, an unsurprising result given that repeat violent offenders occupy such facilities. Racial composition of the prison is unrelated to on assaults on prison staff.

The coefficient estimate on the suicide rate is positive and statistically significant at the 10% level suggesting that the suicide rate may be an indicator variable for unpleasant conditions that may lead to assaults.

Conclusion

The analysis in this chapter suggests that are identifiable prison characteristics that affect the number of assaults on staff per prison guard. Contraband seizures per inmate has a very large positive effect on assaults, suggesting that the availability of contraband may have a significant impact upon the perceived quality of life in prison. The suicide rate may also be an indicator of prison conditions, as the suicide rate was positively related to assaults per guard.

Additionally, participation in educational programs appears to be negatively related to assaults per guard, suggesting that inmate rehabilitation may be possible.

Table 4.1 Summary Statistics for *1990 Census of Adults Corr. Facilities*, by Inmate Population

1287 Observations		
Variable	Mean	Standard Deviation
Assaults Per Guard	0.0360	0.0905
Inmates	536.7	740.8
Percent Maximum Security	0.1172	0.2648
Court Order for Overcrowding	0.1445	0.3518
Percent Black	0.4101	0.2589
Confinement Space (cell) [square feet]	328.2	1232.3
Percent Inmates Enrolled in Educational Program	0.2568	0.1618
Contraband Seizures Per Inmates	0.0334	0.0640
Suicide Rate	0.0002	0.0014
Operating Expenditure per Inmate	15080.51	16616.81
Capital Expenditure per Inmate	1110.87	8006.47

Table 4.2 Assaults per Guard as Dependent Variable

Variable	*Coefficient*	*Robust standard error*	*t test statistic*	*P-value*
Intercept	0.00575060	0.00345240	1.67	0.096
Inmates	0.00000767	0.00000291	2.63	0.009
Percent Maximum Security	0.03087220	0.01323380	2.33	0.020
Court Order for Overcrowding	0.00277730	0.00493570	0.56	0.574
Percent Black	-0.00446010	0.00659350	-0.68	0.499
Confinement Space (cell) [square feet]	-0.00000238	0.00000162	-1.47	0.143
Percent Inmates Enrolled in Educational Program	-0.04028570	0.01479390	-2.72	0.007
Contraband Seizures Per Inmates	0.98147450	0.10728110	9.15	0.000
Capital Expenditure per Inmate	-0.00000013	0.00000020	-0.64	0.520
Operating Expenditure per Inmate	0.00000012	0.00000009	1.42	0.155
Suicide Rate	2.58087300	1.52790900	1.69	0.091
Number of observations	1283			
F(10, 1272)	19.88			
Prob > F	0.00000			
R-squared	0.53470			
Root MSE	0.06197			

CHAPTER FIVE: CONCLUSION

The results of this dissertation would not surprise Adam Smith, who wrote:

> *"A prison is certainly more useful to the public than a palace; and the person who founds the one is generally directed by a much juster spirit of patriotism, than he who founds the other. But the immediate effects of a prison, the confinement of the wretches shut up in it, are disagreeable; and the imagination either does not take time to trace out the remote ones, or sees them at too great a distance to be much affected by them.* ***A prison, therefore, will always be a disagreeable object; and the fitter it is for the purpose for which it was intended, it will be the more so****." [emphasis mine]*

The Theory of Moral Sentiments (1759), p. 35

Despite being written nearly 250 years ago, Adam Smith's analysis remains relevant to public policy discussion today. Criminals appear to respond to how "disagreeable" prison conditions are. Higher parole waiver rates in states with more prison amenities suggest that the deterrent effect of prison may be mitigated by "nicer" facilities. Further evidence for this view can be found from the result that long-term crime rate difference across states may be negatively related to indicators of disagreeable prison conditions across states. Additionally, I found evidence that parole boards may have been "soft" on crime, but that judges were not. The results from the last chapter reinforce the idea that prison conditions matter to inmates, as

inmates' behavior appears to worsen under more disagreeable prison conditions. Although Smith's assertion that the public interest is served through disagreeable prison may seem barbaric to many, I found evidence to support this view.

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APPENDIX

State-by-state summary of discretionary parole rules

State	Discretion	Comment
Alabama	Yes	The Board cannot parole on life w/o parole or some other sentences.
Alaska	Yes	
Arizona	Yes, very limited	Only have discretion for those who committed an offense prior to January 1, 1994.
Arkansas	Yes, very limited	Only discretion for cases whose crimes were committed prior to 1994.
California	Yes, very limited	Only had 10 paroled in 1997, 12 in 2000 and in 2001, respectively.
Colorado	Yes	Mandatory parole periods (up to 5 years) except certain sex offenders who committed their crime after 11/1/98, who have lifetime supervision. Mandatory parole applies to all inmates subsequent to 1993, except sex offenders who are discretionary.
Connecticut	Yes	Inmates with sentences exceeding two years who have been convicted of non-capital felonies are eligible for parole.
Delaware	Yes, very limited	Parole has been abolished for all those convicted individuals who committed their crime after 6/30/90. There are still 400 persons in the system eligible for parole. The Board recommends modification of sentences to sentencing courts upon DOC application. The Board has authority over parole and mandatory release violators.
Florida	No, still some authority	Abolished parole in 1983 with the implementation of sentencing guidelines. The Board did retain paroling authority over pre 1983 inmates. The Board still does medical paroles, sets terms and conditions of supervision for statutorily mandated released inmates. There were 5961 parole eligible inmates in the system in 1997. Effective 10/1/97 the Board may order five year re-interviews for certain categories of inmates as opposed to a two year interview previously required.
Georgia	Yes, limited	A 1994 law mandated a minimum 10 year prison sentence on first conviction for anyone convicted of the 7 most violent crimes. There is no parole for this group. The second conviction of this type is a life sentence without parole. All others are eligible for parole. Felony offenders convicted of nay fourth felony are not eligible for parole.

Hawaii	Yes	Court does impose mandatory minimum sentences at their discretion for repeat offenders and those crimes which under statute have mandatory minimum sentences attached to the conviction.
Idaho	Yes	
Illinois	No, with some authority	All individuals who committed a crime after 2/1/78 are on determinate sentences. About 480 inmates in a prison population in 1997 of 40,000 remained eligible for parole. The Board is the paroling authority for juvenile offenders in the system. For those inmates serving determinate sentences the Board sets conditions of release, determines when violators are to be returned to prison, screens and makes recommendations for clemency petitions to the Governor.
Indiana	No	Discretionary parole was abolished in 1977, but still have parole supervision. Board may grant parole to offenders for crimes committed prior to 10/1/77 and re-parole those who fall within this guideline.
Iowa	Yes	Life means natural life.
Kansas	Yes, very limited	Individuals whose crimes were committed after 7/1/93 receive a determinate sentence.
Kentucky	Yes	Certain violent offenders must serve a minimum time before eligible for parole. Deleted all forms of early parole consideration except for medical paroles. Final discharges from parole are no longer issued prior to reaching maximum expiration date of sentence. Parole consideration for defined violent offenders was increased from 50% to 85%. Life without parole for capital offenses. Sex offenders cannot be paroled until they have completed treatment. No person who commits a certain specified offenses who was armed or wore body armor can be paroled.
Louisiana	Yes	All crimes against person cannot be paroled.
Maine	No	They abolished parole in 1976 and only a few cases that still can be considered for parole.
Maryland	Yes	Certain crimes of violence and repeat offenders are not eligible for parole.
Massachusetts	Yes	The Board has parole authority over all cases except a few sex offenders who under an old law are not eligible.
Michigan	Yes	Once the prisoner serves the minimum sentence less good time, the Board has jurisdiction to parole. The Board may now parole certain lifers sentenced for 650 grams or more of cocaine after 15 to 20 years depending on other prior convictions and cooperation with police.

Minnesota	No	Discretionary release programs are in jeopardy. Intensive Community Supervision has been shut down and the Challenge Incarceration Program and Work Release Program have had their criteria significantly tightened.
Mississippi	Yes, very limited	The Board has discretion only if the crime was committed prior to 7/1/95. There were 3715 still in prison in 1997 eligible for parole
Missouri	Yes, with limits	Statutes restrict some cases from parole eligibility. The offender must be sentenced under the specific statute before restrictions apply. Drug trafficking first degree for some methamphetamine offenders are no longer eligible for parole.
Montana	Yes	Lifers do have to serve a minimum time before they are eligible for parole.
Nebraska	Yes	Individuals are eligible for consideration after serving one-half of their minimum term. No such reduction of sentence shall be applied to any term imposing a mandatory minimum.
Nevada	Yes	The Board has discretion until the last year of the prison term then parole is mandatory.
New Hampshire	Yes	
New Jersey	Yes	All inmates are eligible after serving 1/3 of their sentence except life without parole for 1st degree murder, and for habitual offenders, whereby the sentencing judge can set parole eligibility.
New Mexico	Yes, with limits	
New York	Yes, new limits	The majority of the inmates are serving indeterminate sentences and subject to discretionary release. However, second violent offenders get determinate sentences and are not eligible for parole. A recent sentencing reform acts have limited the Parole Board's discretionary release authority. It extended determinate sentencing to first time violent felony offenders. Inmates with determinate sentences may be conditionally released when 6/7ths of the sentence has been served.
North Carolina	Yes, very limited	Only on cases prior to 4/10/94.
North Dakota	Yes	
Ohio	Yes, very limited	All sentenced for crimes committed after 7/1/96 are not eligible for parole. The Board does set conditions for those released on determinate sentences. The Board is empowered to impose "bad time" for institutional rule infractions that would be a criminal offense outside prison. "Bad Time" extends the sentence imposed by the sentencing court and may be imposed in increments of 15, 30, 60, 90, days per infraction with accumulation not to exceed half of the original determinate sentence.

Oklahoma	Yes, very limited	The Board only recommends to the Governor, who is the final releasing authority. Anyone committing certain violent offenses on or after March 1, 2000 will have to serve 85% of their sentence (generally offenders serve 1/3) before parole eligibility.
Oregon	Yes, very limited	Only for crimes committed before 1989. Only a small number remain eligible.
Pennsylvania	Yes	Offenders become eligible for parole at the expiration of their minimum sentence. Offenders with sentences of less than two years remain under the court's jurisdiction.
Rhode Island	Yes	All inmates are eligible after serving 1/4 of their sentences except life without parole. The Board now has the responsibility of sexual offender community notification. The Board determines the risk level for re-offense and carries out community notification with local police.
South Carolina	Yes, some limits	Discretionary parole was abolished for certain crimes sentenced to 20 years or more committed after 1/1996.
South Dakota	Yes, very limited	Only inmates who committed their crime prior to 7/1/96 are eligible
Tennessee	Yes, limited	There is no parole for a person who committed a crime against persons offense on or after 7/1/95. Others must serve a minimum time before they are eligible.
Texas	Yes	The board has authority over who is released on parole or discretionary mandatory supervision, conditions of supervision, and revocation. They also make executive clemency recommendation to the Governor.
Utah	Yes	Life without parole and death sentences that are commuted shall have life without parole.
Vermont	Yes	
Virginia	Yes, very limited	Only those who committed a crime prior to the 1995 abolishment of parole are eligible.
Washington	Yes, very limited	Parole was abolished in 1984. Only those who committed a crime prior to 1984 are still eligible and in 1997 about 700 were still in the system.
West Virginia	Yes	Must see everyone yearly, except lifers who can be given a three year set-off.
Wisconsin	Yes, very limited	The truth and sentencing law that took effect in January of 2000 eliminated parole for individuals arrested after that date. Anyone sentenced to less than one year is eligible. The Board still has authority over old code cases.
Wyoming	Yes	Inmates must serve a minimum before paroled. Cannot parole lifers.

Source: Association of Paroling Authorities International, Parole Board Survey 2002